GAU 2812

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Alan R. Reinberg

Title: METHOD FOR REDUCING SINGLE BIT DATA LOSS IN A MEMORY CIRCUIT

Docket No.: 303.522US1
Filed: August 25, 1999
Examiner: Richard A. Booth

Serial No.: 09/382,442
Due Date: September 20, 2001
Group Art Unit: 2812

Commissioner for Patents
Washington, D.C. 20231

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X A Response Under 1.111 (2 Pages).

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S/N 09/382,442

PATENT

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#11 Response 9/27/01 V. Vannall

RESPONSE UNDER 37 CFR § 1.111

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Applicant has carefully reviewed and considered the Office Action mailed on June 20, 2001, and the references cited therewith.

Claims 1-39 are pending in this application.

§103 Rejection of the Claims

Claims 1-14, 26-32, and 35-38 were rejected under 35 USC § 103(a) as being unpatentable over admitted prior art in view of Lisenker et al. (WO 94/19829) or Clark et al. (U.S. Patent No. 5,972,765). The Lisenker reference describes using deuterium in order to increase the bond energy of Si-H and Si-OH bonds by substituting deuterium (D). The Lisenker reference describes this procedure as usable in the fabrication of MOS transistors and bipolar junction transistors. The Clark reference describes using deuterium in the fabrication of MOSFET devices and TFT's, polyresistors and polyemitter bipolars. The Clark reference mentions that deuterium provides greater resistance to hot electron stresses.

The Examiner acknowledges that neither of the references describes a use of deuterium for reducing random single bit data loss or describes a use of deuterium in the fabrication of FLASH memory cells. The Examiner's assertion that it is obvious that a FLASH memory cell would benefit in the same way as other types of memory cells from deuterium fabrication does not account for differences in operation of a FLASH memory cell, as opposed to a MOSFET.

In a FLASH memory cell, programming operation is performed by channel hot electron injection. However, an erase operation is carried out by extracting the stored electron from the floating gate to erase gate, for all the bits, at the same time. For a FLASH memory to operate successfully, both the programming operation and the erase operation must operate in a satisfactory manner. There is no precedent in the references cited by the Examiner, to suggest